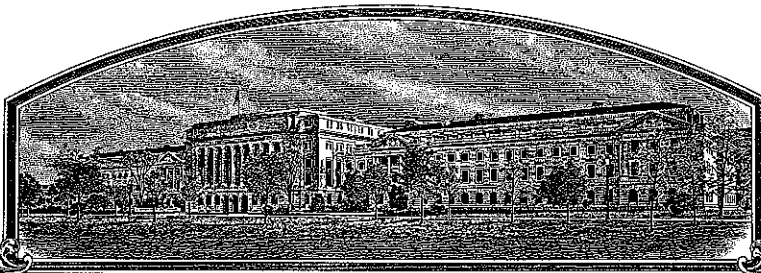


No.

200500319



# THE UNITED STATES OF AMERICA

**TO ALL TO WHOM THESE PRESENTS SHALL COME:**

*West Bred, LLC*

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLACEMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PROPAGATING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED IN THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Santa Fe'



*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifth day of July, in the year two thousand and six.*

Attest:

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

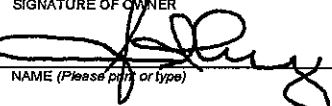

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER  WestBred, LLC		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME  G980039		3. VARIETY NAME  Santa Fe	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)  8111 Timberline Dr Bozeman, MT 59718		5. TELEPHONE (include area code)  406-587-1218		FOR OFFICIAL USE ONLY PVPO NUMBER <b>200500319</b> FILING DATE <b>August 8, 2005</b>	
		6. FAX (include area code)  406-586-8247			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.)  Corporation (LLC)		8. IF INCORPORATED, GIVE STATE OF INCORPORATION  Arizona		9. DATE OF INCORPORATION  08-07-2003	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers)  Dr. Sid W. Perry WestBred, LLC 14604 S. Haven Rd. Haven, KS 67543				FILING AND EXAMINATION FEES: \$ 3652.00 DATE 8/8/2005 CERTIFICATION FEE: \$ 768.00 DATE 5/09/2006	
11. TELEPHONE (include area code)  620-465-2675		12. FAX (include area code)  620-465-2693		13. E-MAIL  sperry@westbred.com	
14. CROP KIND (Common Name)  Wheat		16. FAMILY NAME (Botanical)  Gramineae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL)  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP  Triticum aestivum		17. IS THE VARIETY A FIRST GENERATION HYBRID?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)  <input type="checkbox"/> YES (if "yes", answer items 21 and 22 below) <input checked="" type="checkbox"/> NO (if "no", go to item 23) 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.  <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)?  <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.  The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.  Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER  NAME (Please print or type)  Dr. Sid Perry		SIGNATURE OF OWNER  NAME (Please print or type)  Dr. Dan R. Biggerstaff			
CAPACITY OR TITLE  Breeder		DATE  03-15-2005		CAPACITY OR TITLE  V. P. Research	
				DATE  06-15-2005	

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

**Plant Variety Protection Office**

**Telephone: (301) 504-5518**

**FAX: (301) 504-5291**

**Homepage:** <http://www.ams.usda.gov/science/pvpo/pvpindex.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

#### ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
  - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

**22. CONTINUED FROM FRONT** (Please provide a statement as to the limitation and sequence of generations that may be certified.)

**23. CONTINUED FROM FRONT** (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

**24. CONTINUED FROM FRONT** (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

**Exhibit A.****Origin and Breeding History**

Santa Fe originated from the cross G1878 x KS84W063-9-39-3, made in Ft Collins, Colorado in the fall of 1993, and advanced through pedigree methodology. G1878 has the pedigree Hawk//Sturdy/Plainsman V. KS84W063-9-39-3 became the variety Jagger. The F1 was increased in the field at Ft Collins in the spring of 1994 and harvested to generate F2 seed. The F2 population was deemed worthy based on early maturity and leaf rust resistance. Individual head selections were randomly made from the population grown in Haven Kansas in 1995. Individual heads were sampled from a selected F3 head-row harvested in Haven in 1996 based on early maturity, leaf rust resistance, and short height. A single F4 head-row was harvested at Haven in 1997 based on early maturity, leaf rust resistance, and short height. An F5 observation plot was selected at Haven in 1998 for advancement based on early maturity, leaf rust resistance, short height, and high test weight. Eight individual heads were randomly selected from this plot. A single F6 purification head-row was selected in 1999 in Ft Collins, Colorado, based on vigor and uniformity. Fifty heads were randomly sampled from this head-row. A single F7 head-row was selected in 2000 in Ft Collins, Colorado based on vigor and uniformity. 50 individual heads were randomly selected from this head-row. In 2001, these 50 F8 head-rows were bulk harvested in Ft Collins to generate pre-breeder's seed. In 2002, F9 breeder's seed was produced in Manhattan, Kansas.

Variants which may occur, include later maturing plants at a rate of 0.2%, taller plants at a rate of 0.1%, and shorter, white chaffed plants at a rate of 0.2%. White seed may occur at a rate of 0.2%. The variety has been observed to be uniform and stable since the F9 breeder seed increase, through Foundation seed increase (F10) in 2003, Registered seed (F11) in 2004, and Certified seed production (F12) in 2005.

200500319

**Exhibit B.**

**Statement of Distinctness**

**Santa Fe is most similar to the variety Jagger except that the glume shoulders of Santa Fe are elevated, while the glume shoulders of Jagger are rounded.**

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY  
Wheat (*Triticum* spp.)

NAME OF APPLICANT (S) WestBred, LLC	TEMPORARY OR EXPERIMENTAL DESIGNATION G980039	VARIETY NAME Santa Fe
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) 14604 S. Haven Rd Haven, KS 67543		FOR OFFICIAL USE ONLY PVPO NUMBER 200500319

## PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g.,    or   ) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: RHS. Please answer all questions for your variety; lack of response may delay progress of your application.

## 1. KIND:

- 1 = Common  
2 = Durum  
3 = Club  
4 = Other (Specify) \_\_\_\_\_

## 2. VERNALIZATION:

- 1 = Spring  
2 = Winter  
3 = Other (Specify) \_\_\_\_\_

## 3. COLEOPTILE ANTHOCYANIN:

- 1 = Absent                      2 = Present

## 4. JUVENILE PLANT GROWTH:

- 1 = Prostrate              2 = Semi-erect              3 = Erect

## 5. PLANT COLOR: (boot stage)

- 1 = Yellow-Green    137C  
2 = Green  
3 = Blue-Green

## 6. FLAG LEAF: (boot stage)

- 1 = Erect                      2 = Recurved

- 1 = Not Twisted              2 = Twisted

- 1 = Wax Absent              2 = Wax Present

## 7. EAR EMERGENCE:

Number of Days (Average)

Number of Days Earlier Than

\* KS2137

Same As

\* Karl 92 

Number of Days Later Than

\* Jagger

\*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

## 8. ANTHOR COLOR:

- 1 = Yellow    2 = Purple

5

## 9. PLANT HEIGHT: (from soil to top of head, excluding awns)

per both  
rows  
04/29/06

☐ ☐ ☐ ☐ ☐

cm (Average)

84 cm

☐ ☐

cm Taller Than

KS2145

Same As

Karl 92

☐ ☐

cm Shorter Than

Jagger

## 10. STEM:

## A. ANTHOCYANIN

☐ ☐

1 = Absent 2 = Present

## B. WAXY BLOOM

☐ ☐

1 = Absent 2 = Present

## C. HAIRINESS (last internode of rachis)

☐ ☐

1 = Absent 2 = Present

## D. INTERNODE

☐ ☐

1 = Hollow 2 = Semi-solid 3 = Solid

☐ ☐

Number of Nodes

## E. PEDUNCLE

☐ ☐

1 = Erect 2 = Recurved 3 = Semi-erect

☐ ☐

cm Length

## F. AURICLE

☐ ☐

Anthocyanin: 1 = Absent 2 = Present

☐ ☐

Hair: 1 = Absent 2 = Present

## 11. HEAD: (At Maturity)

## A. DENSITY

☐ ☐1 = Lax  
2 = Middense (Laxidense)  
3 = Dense

## B. SHAPE

☐ ☐1 = Tapering  
2 = Strap  
3 = Clavate  
4 = Other (Specify) \_\_\_\_\_

## C. CURVATURE

☐ ☐1 = Erect  
2 = Inclined  
3 = Recurved

## D. AWNEDNESS

☐ ☐1 = Awnless  
2 = Apically Awnletted  
3 = Awnletted  
4 = Awned

## 12. GLUMES: (At Maturity)

## A. COLOR

☐ ☐1 = White  
2 = Tan  
3 = Other (Specify) Tan 164D with a Grey Brown 199A upper 1/2 of glume

## B. SHOULDER

☐ ☐1 = Wanting 2 = Oblique  
3 = Rounded 4 = Square  
5 = Elevated 6 = Apiculate  
7 = Other (Specify) \_\_\_\_\_

## C. SHOULDER WIDTH

☐ ☐1 = Narrow  
2 = Medium  
3 = Wide

## D. BEAK

☐ ☐1 = Obtuse  
2 = Acute  
3 = Acuminate

## E. BEAK WIDTH

☐ ☐1 = Narrow  
2 = Medium  
3 = Wide

## F. GLUME LENGTH

☐ ☐1 = Short (ca. 7mm)  
2 = Medium (ca. 8mm)  
3 = Long (ca. 9mm)

## G. WIDTH

☐ ☐1 = Narrow (ca. 3mm)  
2 = Medium (ca. 3.5mm)  
3 = Long (ca. 4mm)

6

## 13. SEED:

## A. SHAPE

- ☒ 1 = Ovate  
☐ 2 = Oval  
☐ 3 = Elliptical

## B. CHEEK

- ☒ 1 = Rounded  
☐ 2 = Angular

## C. BRUSH

- ☒ 2 1 = Short 1 = Not Collared  
 2 = Medium 2 = Collared  
 3 = Long

## D. CREASE

- ☒ 1 1 = Width 60% or less of Kernel  
 2 = Width 80% or less of Kernel  
 3 = Width Nearly as Wide as Kernel

- ☒ 1 1 = Depth 20% or less of Kernel  
 2 = Depth 35% or less of Kernel  
 3 = Depth 50% or less of Kernel

## E. COLOR

- ☒ 3 1 = White  
 2 = Amber  
 3 = Red  
 4 = Other (Specify) \_\_\_\_\_

## F. TEXTURE

- ☒ 1 1 = Hard  
 2 = Soft  
 3 = Other (Specify) \_\_\_\_\_

## G. PHENOL REACTION (See Instructions)

- ☒ 4 1 = Ivory 4 = Dark Brown  
 2 = Fawn 5 = Black  
 3 = Light Brown

## H. SEED WEIGHT

- ☒ ☒ 33 g/1000 Seed (Whole number only)

## I. GERM SIZE

- ☒ 1 1 = Small  
 2 = Midsize  
 3 = Large

## 14. DISEASE: PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

(0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> 1 Stem Rust ( <i>Puccinia graminis</i> f. sp. <i>tritici</i> ) | <input checked="" type="checkbox"/> 2 Leaf Rust ( <i>Puccinia recondita</i> f. sp. <i>tritici</i> )           |
| <input checked="" type="checkbox"/> 2 Stripe Rust ( <i>Puccinia striiformis</i> )                  | <input type="checkbox"/> 0 Loose Smut ( <i>Ustilago tritici</i> )   |
| <input checked="" type="checkbox"/> 3 Tan Spot ( <i>Pyrenophora tritici-repentis</i> )             | <input type="checkbox"/> 0 Flag Smut ( <i>Urocystis agropyri</i> )  |
| <input type="checkbox"/> 0 Halo Spot ( <i>Selenophoma donacis</i> )                                | <input type="checkbox"/> 0 Common Bunt ( <i>Tilletia tritici</i> or <i>T. laevis</i> )                        |
| <input checked="" type="checkbox"/> 3 <i>Septoria nodorum</i> (Glume Blotch)                       | <input type="checkbox"/> 0 Dwarf Bunt ( <i>Tilletia controversa</i> )   |
| <input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)                          | <input checked="" type="checkbox"/> 1 Karnal Bunt ( <i>Tilletia indica</i> )                                  |
| <input checked="" type="checkbox"/> 3 <i>Septoria tritici</i> (Speckled Leaf Blotch)               | <input checked="" type="checkbox"/> 1 Powdery Mildew ( <i>Erysiphe graminis</i> f. sp. <i>tritici</i> )       |
| <input checked="" type="checkbox"/> 1 Scab ( <i>Fusarium</i> spp.)                                 | <input type="checkbox"/> 0 "Snow Molds"   |
| <input type="checkbox"/> 0 "Black Point" (Kernel Smudge)   | <input type="checkbox"/> 0 Common Root Rot ( <i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.) |
| <input checked="" type="checkbox"/> 1 Barley Yellow Dwarf Virus (BYDV)                             | <input type="checkbox"/> 0 Rhizoctonia Root Rot ( <i>Rhizoctonia solani</i> )                                 |
| <input checked="" type="checkbox"/> 2 Soilborne Mosaic Virus (SBMV)                                | <input type="checkbox"/> 0 Black Chaff ( <i>Xanthomonas campestris</i> pv. <i>translucens</i> )               |
| <input type="checkbox"/> 0 Wheat Yellow (Spindle Streak) Mosaic Virus                              | <input type="checkbox"/> 0 Bacterial Leaf Blight ( <i>Pseudomonas syringae</i> pv. <i>syringae</i> )          |
| <input checked="" type="checkbox"/> 3 Wheat Streak Mosaic Virus (WSMV)                             | <input type="checkbox"/> Other (Specify) _____  |
| <input type="checkbox"/> Other (Specify) _____   | <input type="checkbox"/> Other (Specify) _____  |
| <input type="checkbox"/> Other (Specify) _____   | <input type="checkbox"/> Other (Specify) _____  |
| <input type="checkbox"/> Other (Specify) _____   | <input type="checkbox"/> Other (Specify) _____  |

## 15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> 1 Hessian Fly ( <i>Mayetiola destructor</i> ) | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Stem Sawfly ( <i>Cephus</i> spp.)                      | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> 0 Cereal Leaf Beetle ( <i>Oulema melanopa</i> )          | <input type="checkbox"/> Other (Specify) _____ |



15. INSECT: (continued)    0 = Not Tested    1 = Susceptible    2 = Resistant    3 = Intermediate    4 = Tolerant

PLEASE SPECIFY BIOTYPE (Where Needed)



Russian Aphid (*Diuraphis noxia*)



Other (Specify) \_\_\_\_\_



Greenbug (*Schizaphis graminum*)



Other (Specify) \_\_\_\_\_



Aphids



Other (Specify) \_\_\_\_\_

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

**Exhibit D.****Variety Description for Santa Fe**

**Santa Fe is a hard red winter wheat variety developed by WestBred LLC of Haven Kansas, and tested as experimental G980039. Santa Fe originated from the cross G1878 x Jagger made in 1993, and was selected through traditional pedigree breeding methods. Pre-Breeders seed was derived from the bulk of 50 F8 head-rows harvested in 2001. Santa Fe is well adapted to the southern Great Plains for grain production.**

**Santa Fe has semi-erect juvenile growth habit and green leaf color at boot stage. The flag leaf is erect, twisted, and has no waxy bloom. The auricle color is white. Santa Fe has a heading date 1 day later than Jagger. The anthers are yellow, and the internodes are hollow. The stem color at maturity is white. Plant height averages 2.5 cm shorter than Jagger. The spike shape is tapering, the density is mid-dense, and the position at maturity is inclined. Santa Fe is awned, with mid-long, brown awns. At maturity, the glumes are long, with elevated shoulders. The glume color is tan with a gray brown upper half. The glume beaks are medium length and acuminate. The seed is red, ovate, and has a medium size brush. The phenol reaction is black brown.**

**Variants which may occur, include later maturing plants at a rate of 0.2%, taller plants at a rate of 0.1%, and shorter, white chaffed plants at a rate of 0.2%. White seed may occur at a rate of 0.2%. The variety has been observed to be uniform and stable since the F9 breeder seed increase, through Foundation seed increase (F10) in 2003, Registered seed (F11) in 2004, and Certified seed production (F12) in 2005.**

**Santa Fe is moderately resistant to the current races of leaf rust prevalent in the southern plains, and resistant to the current race of stripe rust. It is resistant to soil borne mosaic virus, moderately resistant to septoria, and moderately resistant to tan spot. It is susceptible to powdery mildew, greenbug, Hessian fly, and Russian wheat aphid.**

**The milling and baking quality of Santa Fe is acceptable.**

**300 heads have been retained from breeder's seed plots, which will be used to re-constitute the variety under irrigation in Colorado and maintain a pure seed source. This cycle will be repeated as needed. Seed classes to be recognized include Foundation, Registered, and Certified.**

**We anticipate certified seed sales in August, 2005.**

**Application for protection through the Plant Variety Protection Act will be made. The Certification Option will be elected.**

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**Acreages may be published by AOSCA and certifying agencies.**

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2003 USDA HWWQL Report for the Southern Regional Performance Nursery															
Mixing and Baking Data															
Zone	Line	Flour protein content (%)	Flour water absorption (%)	Mix time as is (min)	Mix time corrected (min)	Dough weight (g)	Dough proof height (cm)	Dough crumb grain	Loaf volume as Red'd	Loaf volume specific (cc/g)	Loaf volume potential (cc/%)	Mixograph absorption (%)	Mixograph as-is (min)	Mixograph corrected (min)	Mixograph tolerance
North Central	G980039	11.6	63.2	3.88	3.68	172.3	7.1	4	840	5.6	63	63.2	3	2.85	3
Northern High Plains	G980039	12.4	61.4	2.88	2.88	171	7.4	3.5	850	5.7	59	64.6	2.13	2.13	1
South Central	G980039	12.1	64.2	4.88	4.88	173.8	7.3	4	870	5.7	62	64.2	3.5	3.5	3
Southern High Plains	G980039	14	62.6	3.63	3.63	172.1	7.8	2.5	920	6.1	56	67.3	2.63	2.63	1

2003 USDA HWWQL Report for the Southern Regional Performance Nursery													
Noodle Quality data													
Zone	Line	Wheat Protein (%)	Wheat Milling Yield (%)	Flour ash (%)	Flour protein (%)	PPO	L@0	a@0	b@0	delta L over 24 hrs	delta a over 24 hrs	delta b over 24 hrs	
North Central Plains	G980039	13.3	67.8	0.34	11.6	0.603	80.62	-1.84	25.39	-10.19	0.83	2.42	
Northern High Plains	G980039	14	64.1	0.34	12.4	0.397	80.08	-1.35	24.61	-14.19	1.7	1.07	
South Central Plains	G980039	13.7	67.7	0.38	12.1	0.594	80.32	-1.46	23.85	-10.52	0.67	2.47	
Southern High Plains	G980039	15.9	67.3	0.34	14	0.531	78.15	-1	22.85	-13.27	1.28	1.78	

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2003 USDA HWWQL Report for the Southern Regional Performance Nursery										
Rapid Viscó Analyzer Data										
Zone	Line	Stirring Number (RVU)	Peak Viscosity (RVU)	Trough Viscosity (RVU)	Break down (RVU)	Final Viscosity (RVU)	Set back (RVU)	Peak Time (MIN)	Pasting Temp C.	
North Central Plains	G980039	148.3	235.3	182.5	52.8	295.6	113.1	6.5	64.3	
North High Plains	G980039	165.1	232.3	187.3	45.1	295.2	107.9	6.5	63.3	
South Central Plains	G980039	103.9	237.1	171.8	65.3	289.1	117.3	6.4	64	
Southern High Plains	G980039	151.3	228.8	170.8	57.9	282.8	112	6.4	63.2	

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2003 USDA HWWQL report for the Southern Regional Performance Nursery							
Single Kernel Hardness Data							
Zone	Line	wt/bu (lb)	Moisture (%)	kernel weight (mg)	kernel diameter (mm)	SKCS hardness	Class
North Central Plains	G980039	60.8	11.7	32.4	2.43	63	Hard
Northern High Plains	G980039	59.3	10.5	30.9	2.34	64	Hard
South Central Plains	G980039	60	11.7	31.5	2.42	61	Hard
Southern High Plains	G980039	58.9	10.6	31.4	2.37	57	Hard

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICEEXHIBIT E  
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)  WestBred, LLC	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  G980039	3. VARIETY NAME  Santa Fe
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  14604 S. Haven Rd Haven, KS 67543	5. TELEPHONE (Include area code)  620-465-2675	6. FAX (Include area code)  620-465-2693
7. PVPO NUMBER  200500319		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

The original cross was made while the program was Cargill Hybrids Seeds. In 1994, Cargill purchased Goertzen Seed Research and operated the breeding program as Goertzen Seed Research until August 2003. The program was merged with Western Plant Breeders, Inc. and currently operates as WestBred, LLC.

## PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.